Vol. 30. Pts. 5–6. Pp. 57–84. 36 figs. 30th June, 1961

THE PROCEEDINGS
OF THE
ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B
TAXONOMY

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

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LONDON
PUBLISHED BY THE SOCIETY AND
SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7.
Price 9s. 6d.

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DIPTERA (SPHAEROCERIDAE) FROM SOUTH CHILE

By O. W. Richards

(*Imperial College of Science and Technology, London*)

During 1954, Dr. G. Kuschel collected some brachypterous flies in the forests of south Chile. He sent the specimens to me in 1955 but I have only recently had time to study them and find that they constitute an interesting new genus. Just when my description was finished, Dr. Kuschel gave to me more material from south Chile collected in 1958–59 during the Royal Society Expedition to that country. The two lots of insects are described together here. Most of them come from Chepu on Chiloe I., lat. 42° S. and from Pto. Williams on Navarino I., lat. 55° S.

Archiborborus Duda, 1921

This genus is very like the European *Copromyza* Fallén (= *Borborus* auctt.) and replaces it in South America. It differs principally as follows:

No ocellar bristles arising between median and posterior ocelli but in all species a pair of diverging bristles arising behind ocelli and in most species a pair of diverging bristles arising in front of them. Sternopleurites with a strong bristle. Wings when fully developed almost always with dark and pale spots on veins but venation similar to *Copromyza*.

Type: Borborus hirtipes Macquart, 1843.

Three subgenera may be recognised and they and their species are distinguished as follows:

1 Sternopleurite covered all over with fine hairs amongst which the sternopleural bristle is not conspicuous. Head with numerous rows of postocular hairs. Mid-tibia very hairy, sometimes without spines except at the extreme apex . . . . . **Archiborborus** Duda *s.s.* 2

– Sternopleurite with 1 strong bristle and a few minute ones near it, but with a big gap between these and the more ventral bristles and hairs. Mid-tibiae less hairy, with at least 2 more or less dorsal bristles and 1 ventral one 3

2 Smaller. The pair of preocellar bristles usually absent in the male, sometimes also the postocellar ones, but both present in the female. Mesoscutum with 6 irregular rows of microchaetes (*i.e.* 4 rows between and 2 along the dorsocentrals). Legs pale annulated, mid-tibia with apical spines only. Wings with a dark spot at the end of R_{2+3} and about 7 dark spots along R_{4+5} . . . . . **A. hirtipes** (Macquart)

– Larger. The pair of preocellars absent in the male. Mesoscutum with about 8 rows of microchaetes between the dorsocentrals. Legs dark, mid-tibia with 5 anterodorsal bristles. Wings with no spot on R_{2+3} and 4 dark spots on R_{4+5} . . . . . **A. maximus** sp. n.

3 Head with numerous rows of postocular hairs. Eyes very small . . . (Subgenus **Huapia** Richards, 1931.) **A. (H.) microphthalma** Richards, 1931. *Argentina.*

– Head with 1 row of postocular bristles more or less reduplicated above. Eyes normal. Wings sometimes reduced . . . . . (Subgenus **Procopromyza** Richards, 1931. Type, **A. (P.) albicans** Richards, 1931) 4

4 Wings reduced to narrow vestiges not extending beyond the end of the first tergal plate. Abdominal tergites 2–4 each with a transverse row of very long outstanding bristles. *S. Chile* . **Archiborborus chaetosus** sp. n.

– Wings always as long or longer than the abdomen. Abdominal tergites without long bristles 5

5 Mesoscutum brilliantly shining without a trace of tomentum and only 2 rows of acrostichals. Wings clear, not maculated. Legs dark, not even the knees pale. Male pregenital sternite large, projecting like a ploughshare, with an apical fringe of dense, short hairs 6

– Mesoscutum with at least some tomentum, often not very shining, with at least 4 rows of acrostichal bristles 7

6 Vertex somewhat longer than broad, orbits broad. Pre-apical dorsal bristle on hind tibia twice as long as its distance from the end of the tibia. *Peru, Bolivia* . . . . . **A. orbitalis** Duda

– Vertex as long as broad, orbits narrower. Pre-apical dorsal bristle on hind tibia as long as this distance. *Peru* . . . . . var. **latifrons** Duda

7 Hind tibia with some strong anterodorsal bristles. Last sternite of the male not emarginate 8

– Hind tibia without any anterodorsal bristles before the apex 9

8[1] Wings with 4 brown spots on R_{4+5}. Hind tibia with 2 or 3 anterodorsal bristles near its middle. *Chile* . . . . . **A. maculipennis** Duda

– Wings without spots. Hind tibia with long hairs and 4 anterodorsal and 3 posterodorsal bristles arising along its whole length. *Bolivia* (*not seen*) **A. setosus** Duda

9 Wings without any dark spots. Male pregenital sternite simple. Male fore basitarsus without a small black apical hook. Hind tibia without an anteroventral bristle at two-thirds. (*A. calceatus* Duda, described from 1 ♀ (Colombia), falls here but cannot be fitted into the key) 10

– Wings with dark spots on R_{4+5}. 11

10 Mid-tibia with 1 ventral bristle. Ocellar triangle, orbits and dorsum of thorax shining black . . . . . **A. edwardsi** Richards

— Mid-tibia with 1 anteroventral and 1 posteroventral bristle. Head and dorsum of thorax dull brownish-black . . . . . **A. hirtus** (Bigot)

11 Hind tibia without an anteroventral bristle. R_{4+5} not white between the dark spots, but the cross-veins white. *Argentina, Chile* 12

— Hind tibia with an anteroventral bristle at two-thirds (except as a rare variety in one or two males). Pregenital sternite of male with a deep emargination. *Chile* 14

12 Hind femora with 2 anteroventral bristles. No jowlar bristle half as long as the vibrissa. (Otherwise very like *A. chilensis* Rich.). *Chile* **A. quadrinotus** (Bigot)

– Hind femora with 1 anteroventral bristle. One jowlar bristle at least half as long as the vibrissa. *Chile, Argentina* 13

13 Male pregenital sternite simple. Male fore basitarsus without a hook at the apex. Female blacker and more shining, with less tomentum on head and mesoscutum, legs darker. Wings more distinctly spotted **A. simplicimanus** Richards

— Male pregenital sternite emarginate but not very deeply, lateral lobes rounded. Male fore basitarsus with a small apical hook. Female less shining, head and mesoscutum with more and paler tomentum. Legs more variegated. Wings less distinctly spotted . . **A. chilensis** Richards

14 Male pregenital sternite with a deep angular emargination, lateral lobes rounded. R_{4+5} concolorous between the dark spots. Head and thorax with more distinct tomentum. Front of head and fore coxae reddish **A. albicans** Richards

[1] *A. königi* Duda *in* Holdhaus, 1932 (S. Georgia) would probably run here. It has spotted wings but the ♂ fifth sternite is shallowly emarginate.

– Male pregenital sternite rather shallowly emarginate, lateral lobes pointed. R_{4+5} white between the dark spots. Tomentum less distinct. Front of head and fore coxae yellow . . . . . **A. submaculatus** Duda

Archiborborus (*Archiborborus*) *hirtipes* (Macquart)

Borborus hirtipes Macquart, 1843.

Chile: Pto. Williams, 18.i.59, 1 ♀.

Also known from Falkland Is., Montevideo, Buenos Aires and also elsewhere in Chile.

Archiborborus (Archiborborus) maximus sp. n.

The single specimen of this species seems to be very distinct in its large size and forms in some respects a connecting link between the present subgenus and *Procopromyza*.

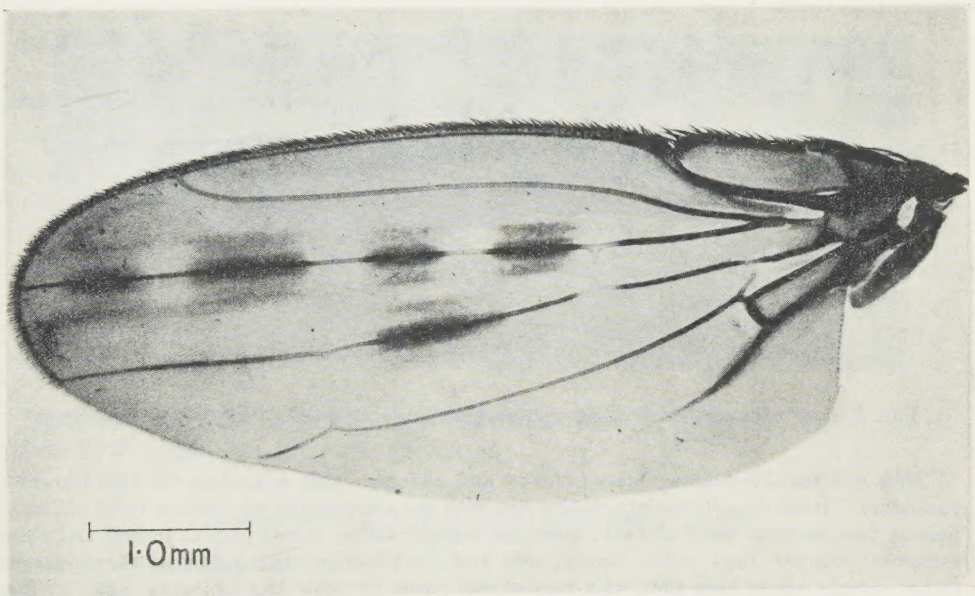


Fig. 1.—Left wing of *Archiborborus maximus* Richards, male. (*Photo, J. W. Siddorn*).

Male.—Brownish-black with conspicuous brown tomentum; frons with an orange triangle in front; narrow apices of all femora, fore and mid-tibiae and tarsi, pitchy-red; wings light yellow-brown with four dark spots on R_{4+5} and a long dark spot on M_{1+2}, areas between spots rather more hyaline but no veins white; halteres reddish-brown. Length 7·5 mm.

Longest buccal bristle only one-quarter as long as vibrissa, buccae at level of this bristle rather more than half as wide as lesser diameter of eye; arista about as long as distance between eyes at level of median ocellus, with moderate pubescence; adfrontal bristles very small, in 5 pairs, pair of preocellar bristles absent but a pair of nearly parallel bristles arising behind the ocelli, postocular bristles numerous and irregularly placed. Thorax with one long humeral bristle, one pair of prescutellar dorsocentrals, acrostichals very short, in 8 rows, propleuron dorsally with numerous hairs, sternopleurite with 1 bristle amongst the numerous hairs. Fore and hind femora rather thick, with long dense hairs, on fore femur as long as its diameter, shorter on hind femur; fore femur without bristles; mid-femur with mostly shorter though quite dense hairs, with four short stout bristles before apex; hind femur with a fine anteroventral bristle at three-quarters, and 3 anterodorsal bristles on distal third. Fore tibia with numerous long hairs but

no bristles ; mid-tibiae with long hairs posteriorly, with an anterodorsal row of 5 short bristles, a short apical dorsal, an anteroventral at four-fifths and an apical ring of 5 bristles ; hind tibia with long hairs, a fine anteroventral at two-thirds, a fine pre-apical dorsal, and a short stout anterior, anteroventral and ventral at apex. Fore basitarsus with a small black apical hook ; second segment of hind tarsi not quite so long as first. Wings (fig. 1). Abdomen with long dense, somewhat bristly hairs at sides, almost bare dorsally, with rather dense greyish tomentum, tergal plate 1 + 2, 3, 4 and 5 progressively each a little shorter, plate 6 visible as a small triangle on the left side, plate 7 large and rounded with long bristles, especially on the left side ; genitalia small, pregenital sternite simple.

Type ♂, CHILE : Magellanes, B^{a} Muñoz Garnero, lat. 55° S., on seaweed, 27.xii.58 (*G. Kuschel*) (Mus. Univ. Chile, Santiago).

Archiborborus (Procopromyza) chaetosus sp. n.

This species is very distinct by the absence of halteres, by the greatly reduced wings, and by the rows of long bristles on the abdominal tergites, but as it is clearly derived from *Procopromyza* I do not propose to erect a monotypic subgenus for it.

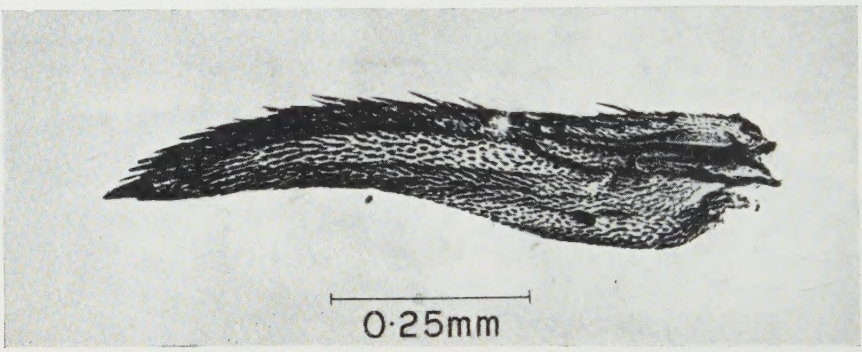


FIG. 2—Left wing of *Archiborborus chaetosus* Richards, female. (*Photo, J. W. Siddorn*).

Male and female.—Shining black ; thorax and abdomen with a distinct but thin brownish tomentum. Head dorsally mainly shining but with some tomentum on anterior third of frons ; buccae, face, anterior third of frons, antennae (except darker dorsal part of second and third segments) orange. Legs yellow brown, mid and hind femora with proximal three-quarters rather sharply black, hind tibia with central two-thirds blackish, less so in the male. Wings slightly infuscate, veins brown. Length *ca.* 2·5 mm.

General shape not modified from a winged species, thorax very slightly wider than head or abdomen. All bristles rather long for the size of the insect ; 1 large buccal bristle, two-thirds as long as vibrissa and much longer than any of the others ; divergent pre- and postocellar bristles well developed, other head bristles normal, 3 pairs of small adfrontals, postocular bristles mainly in 1 row. Eyes and ocelli normal, eyes large and circular, buccae at level of large buccal bristles not more than one-fifth as wide as eye ; arista 4 times as long as antenna with fairly long pubescence. Thorax with 1 long humeral, 3 pairs of long dorsocentrals (1 presutural), 4 rows of very weak acrostichals, 4 long scutellars, 1 long sternopleural with only 1 or 2 minute hairs near it, 1 small rather ventral propleural bristle. Fore and hind femora rather thicker, mid-femora considerably thinner, all with short hairs only ; fore femur with 5 anteroventral bristles on distal half and 2 posterodorsals near middle ; mid-femur with 5 anterior bristles on distal half, becoming progressively longer distally ; hind femur with 2 anterodorsals and 1 anteroventral at three-quarters. Fore tibia with 1 or 2 fine pre-apical dorsal bristles ; mid-tibia with 3 anterodorsal bristles on central third (distal one the longest), an anteroventral at two-thirds, a pre-apical dorsal and an apical ring of 4 bristles ; hind tibia with an anteroventral bristle at two-thirds, a long pre-apical dorsal, and an anterior, anteroventral, and ventral at apex. Second segment of hind tarsus a little longer than the first, male with a small black hook at

apex of fore basitarsus. Wings (fig. 2) narrow, about 5 times as long as broad, broadest near base, shorter than mid-tibia, extending back just beyond end of first tergal plate, with only 1 distinct vein behind costa, no long bristle at the tip. Halteres absent. Abdominal tergites almost normal for the family, a little more convex and laterally sharp-edged than usual, first tergal plate (= 1 + 2) somewhat truncate anteriorly; each plate with a weak apical margin; in female 1 + 2 and 3 with a pre-apical row of 4 long bristles, 4 with 2 long bristles; in male 1 + 2, 3 and 4 with 4 bristles and 5 with 2; tergites each with about 3 rows of sparse microchaetes, about 12–14 in a row; female with tergite 5 the last visible segment, bearing a few moderately long outstanding bristles, cerci each with 2–3 rather long sinuous bristles; male with sixth tergal plate apparently fused to the large genitalia, anal split small and oval, ventrally with a pair of converging, narrowly triangular forceps; sternites not broad, separated from the tergites by a wide membrane, each sternal plate a little longer and wider than the one before, pregenital sternite in male with a wide but not very deep, subangular emargination.

Type ♂ (in alcohol), CHILE: Chiloe I., lat. 42° S., Chepu, 2.x.58 (*G. Kuschel*). Allotype, the same place, 3.x.58; 3 ♀ paratypes, the same place, 3.x, 11.x, 13.x.

Type and allotype in the collection of the University of Chile, one paratype in my collection and two in that of the British Museum (Natural History).

Archiborborus (*Procopromyza*) *maculipennis* Duda

Archiborborus maculipennis Duda, 1921.

This species was described from one male and one female collected at Punta Arenas and 30 years ago I was able to examine these specimens. Some of Dr. Kuschel's material seems certainly to be the same although I have not been able to make any direct comparison.

CHILE: Navarino I., lat. 55° S., Puerto Williams, 2.ii.57, 2 ♂; 18.i.59, ♂♀.

Archiborborus (*Procopromyza*) *hirtus* (Bigot)

Ceroptera hirta Bigot, 1888

Described from two males captured at "Cape Horn"; now recorded from Wellington I., P. Edén, lat. 49° S., 4. xii. 58, 1 ♂.

Archiborborus (*Procopromyza*) *quadrinotus* (Bigot)

Ceroptera quadrinota Bigot, 1888.

I examined Bigot's specimens which are in Mr. J. E. Collin's collection in 1930 and chose a male as the type. The two females appeared to belong to other species.

The present collection includes 1 ♂, Puerto Williams, 20.i.59, which seems to be the same.

Archiborborus (*Procopromyza*) *simplicimanus* Richards, 1931

Dr. Kuschel's series was compared with the unique male type in the British Museum (Natural History). They tend to be larger and darker but I think that they belong to the same species; the females were previously undescribed and differ from *A. chilensis* Rich. as follows:

Blacker and more shining, head and mesoscutum with darker and less dense tomentum; legs less maculated with yellowish; wings with more conspicuous dark spots.

CHILE: Chiloe I., lat. 42° S., Chepu, 13, 17.x.58, ♂♀; Navarino I., Puerto Williams, lat. 55° S., 3, 9.ii.59, ♂♀. The species was described from Argentina: Lake Correntoso.

Archiborborus (*Procopromyza*) *submaculatus* Duda

Archiborborus submaculatus Duda, 1921.

I was able to compare Dr. Kuschel's specimens with the series in the British Museum (Natural History) which had been compared with the type in 1930. It has already been recorded from Punta Arenas and from the level of Chiloe I. and (Richards, 1955) Juan Fernandez Is. At Puerto Williams, 21.i.59, Dr. Kuschel obtained 3 ♂, 2 ♀ which are labelled " under logs, flying and jumping " ; he tells me they were making flights of a yard or more. These specimens have the wings clearly a little shorter than normal. In two males they reach back almost to the end of the abdomen ; in the other male, and one female, they extend to the end of the fourth

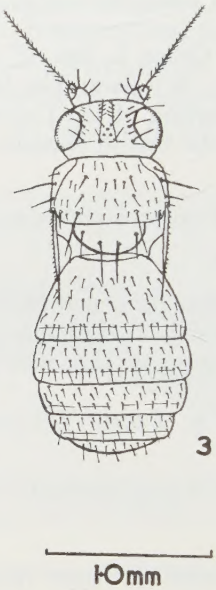


Fig. 3.—Dorsal view of female *Frutillaria*.

tergite. In the other female, they extend to the end of the fifth tergite. In all these specimens the wings are darker than usual. In another three females from Puerto Williams, the wings extend to the end of tergite 5 and are a little dark and in the fourth female from Chepu the wings are normal, a little longer than the abdomen. I cannot separate these specimens from *A. submaculatus* but they may show the beginning of the wing-reduction which is so common in this family. In the male with the shortest wings the genital forceps are exposed. They are very large, blunt and curved and seem to be essentially similar to those of a fully winged male which Dr. Edwards obtained further north in 1926.

Chile : Chiloe I., Chepu, lat. 42° S., 23.x.58, 1 ♀ (fully winged). Puerto Williams, lat. 55° S., 18.i.59, 2 ♀ (wings a little short) ; 3.ii.59, 1 ♀ (wings a little short) ; 21.i.59, under logs, 3 ♂, 2 ♀ (2 ♂, 1 ♀ wings a little short, 1 ♂, 1 ♀ wings distinctly short).

Archiborborus (*Procopromyza*) *albicans* Richards, 1931

The specimens collected by Dr. Kuschel are somewhat larger and darker than the original series from Chiloe I. The pale tomentum is less conspicuous than the name or the original description make it sound, even in the original series.

Chile : Chiloe I., Chepu, lat. 42° S., 18.x.58, on algae on shore, 12 ♂, 18 ♀ ; Wellington I., P. Edén, lat. 49° S., 6.xii.58, on *Macrocystis* on the shore, 4 ♂, 10 ♀.

Leptocera (*Leptocera*) *neocurvinervis* Richards, 1931

CHILE: Navarino I., lat. 55° S., Puerto Williams, 21.i.59, 1 ♂. Described from Argentina and Chile, round about lat. 42° S.

Leptocera (*Thoracochaeta*) *johnsoni* Spuler, 1925

Described from the shore in the state of Washington and recorded from Chiloe I. by Richards (1931). The female is easily recognised by the backwardly directed bristles on the costa. The male has an important character not noted in 1931:

Fore femur somewhat thickened with a ventral row, proximally reduplicated, of short stout outstanding bristles, fore tibia considerably curved, with a posteroventral row of short bristles along its whole length.

CHILE: Navarino I., Puerto Williams, lat. 55° S., on *Macrocystis* on the shore, 20.i.59, 63 ♂, 32 ♀; 29.i.59, 1 ♀.

Leptocera (*Limosina*) *darwini* Richards, 1931

Described from Argentina and Chile and since recorded from Juan Fernandez Is. CHILE: Navarino I., Puerto Williams, lat. 55° S., 21.i.59, 1 ♀.

Frutillaria gen. n. (fig. 3)

Wings long but filiform, without venation, ending in a long stout bristle; halteres absent. Eyes large, subcircular; ocelli very small, close together; 4 small interfrontals, 1 divergent ocellar arising well in front of the median ocellus, 2 outwardly (anterior one two-thirds as long as the other) and 1 posterior inwardly directed superior orbital, 1 external vertical, 1 divergent post-vertical (perhaps really postocellar) bristle on each side. Mesoscutum a little wider than head with eyes and a little wider than long, scutellum almost semicircular, 1 short recumbent humeral, 1 notopleural, 1 short supra-alar, 1 postalar, 1 posterior dorsocentral, 2 scutellar bristles on each side; 1 very small sternopleural bristle. Mid-femur with 2 stout anterior bristles just before apex; mid-tibia with a dorsal bristle just before apex, an anteroventral at four-fifths, and an apical ventral; basitarsus without bristles; hind tibia with a very short curved apical spine on anteroventral side. Abdomen broad oval with sharp edges, segments 3–5 of the same length, bristles all short, sternites very wide. Male genitalia with the posterior gonapophyses narrow and pointed, genital forceps wide, with an inwardly directed process. Shapes of parts greatly depending on the point of view.

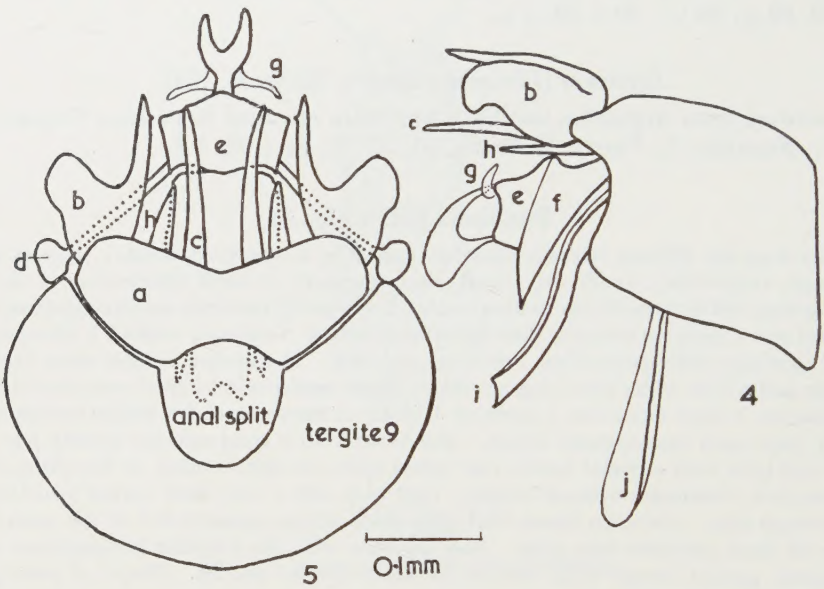
Type of the genus *Frutillaria kuscheli* sp. n.

In my key (1955, *Rev. Chil. Ent.* **4**: 89), this genus would run down to *Phthitia* Enderlein. Although these genera inhabit the same region they have evolved from different winged ancestors. *Phthitia* is clearly derived from *Leptocera* Oliv. whereas *Frutillaria*, judging by the position of the ocellar bristles and the form of the male genitalia, is derived from *Archiborborus* Duda. The shining black colour of the present genus makes the species look very different from *Phthitia* and the reduced dorsocentrals and broad abdomen, with wide sternites and without long bristles, make the separation easy. In some ways *Penola* Rich. from the Falkland Is. is more allied, but in it the thoracic chaetotaxy is more reduced (no dorsocentrals) and the scutellum is short and very transverse.

The present material consists of 71 specimens which I have divided into five species, differing from one another in the structure of the male genitalia and very little else. I am unable to classify the females. It may seem strange that so many species of this endemic genus should have evolved in such a small area, with two of them now sometimes occurring in one locality. But it appears that once a wingless Sphaerocerid genus has evolved speciation is often rapid, particularly in a mountainous district. There are several instances of this in Africa, there being, for instance, eight

species of the endemic genus *Ocellipsis* Rich. on the upper part of Mt. Elgon. It is perhaps more surprising for *F. edenensis* sp. n. to be found at higher elevations in widely separated localities but this again is known in the Chilean flora.

There is no completely satisfactory account of the structure of the male genitalia of Cyclorrhaphous flies. I am in general following Crampton (1942) but my genital forceps is his surstyli. Sabrosky (1949) has illustrated some species of *Leptocera* Oliv. I believe that Sabrosky's " posterior lobe " = cerci, and his anterior clasper = anterior gonapophysis. Hennig (1938) illustrates the male genitalia of *Leptocera silvatica* (Meig.) and the following synonymy of his terms seems to be correct. Anhange des hypopygiums = genital forceps ; Anhange des inneren Kopulationsapparates = posterior gonapophyses ; Gabelplatte = forked plate ; Tragplatte = supporting plate. Compared with my figure of *Lucilia caesar* (L.) (1926, *Trans. ent. Soc. Lond.* **74** : plate 68, fig. 1) : inner arm of forceps = cerci (reduced in the Sphaeroceridae

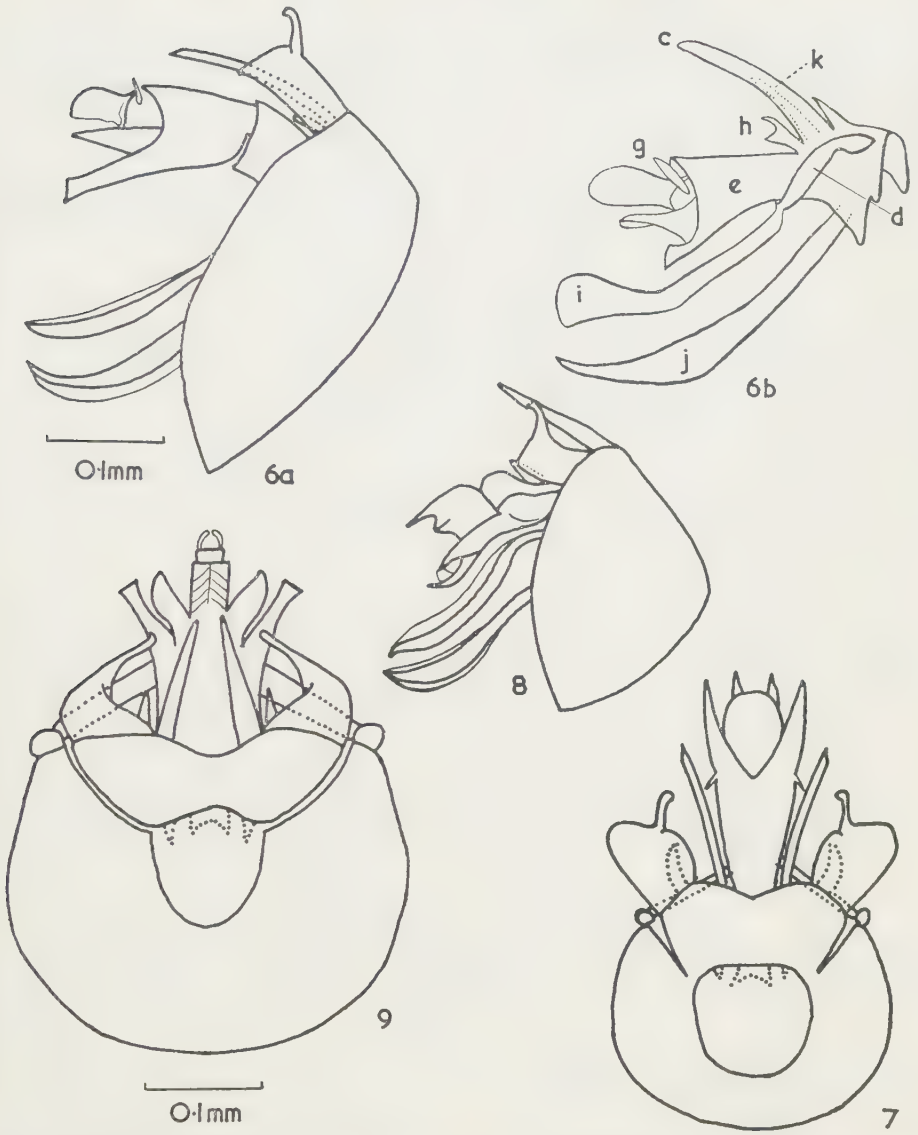


Figs. 4–5.—(4) Male genitalia of *Frutillaria kuscheli* Richards, from the right side. (5) The same, dorsal (actual ventral) view. *a*, cerci ; *b*, genital forceps ; *c*, posterior gonapophyses ; *d*, ninth sternite ; *e*, aedeagus ; *f*, paraphallus ; *g*, wings of aedeagus ; *h*, anterior gonapophysis ; *i*, forked plate ; *j*, supporting plate.

and represented by bases only) ; outer arm of forceps = genital forceps ; *x* and *y* = 9th sternite ; genital capsule = 9th tergite ; posterior process = posterior gonapophysis ; anterior process = anterior gonapophysis ; fig. 1*C* shows dorsal spine of aedeagus, and forked and supporting plates but they are not labelled. These structures are labelled in figures 4, 5 and 6*b* of the present paper.

General Description of All the Species

Male and female.—Shining, black, head, except frontal triangle and orbits, duller ; face and anterior parts of frons more or less yellow ; femoro-tibial joints and tarsi paler. Length 1·3–1·5 mm., males rather smaller than females. Head in side view protruding a little in front of eyes ; 1 long vibrissa, largest buccal bristle hardly one-quarter as long ; arista fully 4 times as long as antenna with long pubescence ; a row of about 6 minute inward pointing bristles just inside the superior orbitals, 1 row of small postoculars. Mesoscutum anteriorly with 2 very short recumbent bristles on each side which probably represent the reduced anterior dorsocentrals, between them 4 rows of widely spaced microchaetes and about 2 further lateral rows on each side.

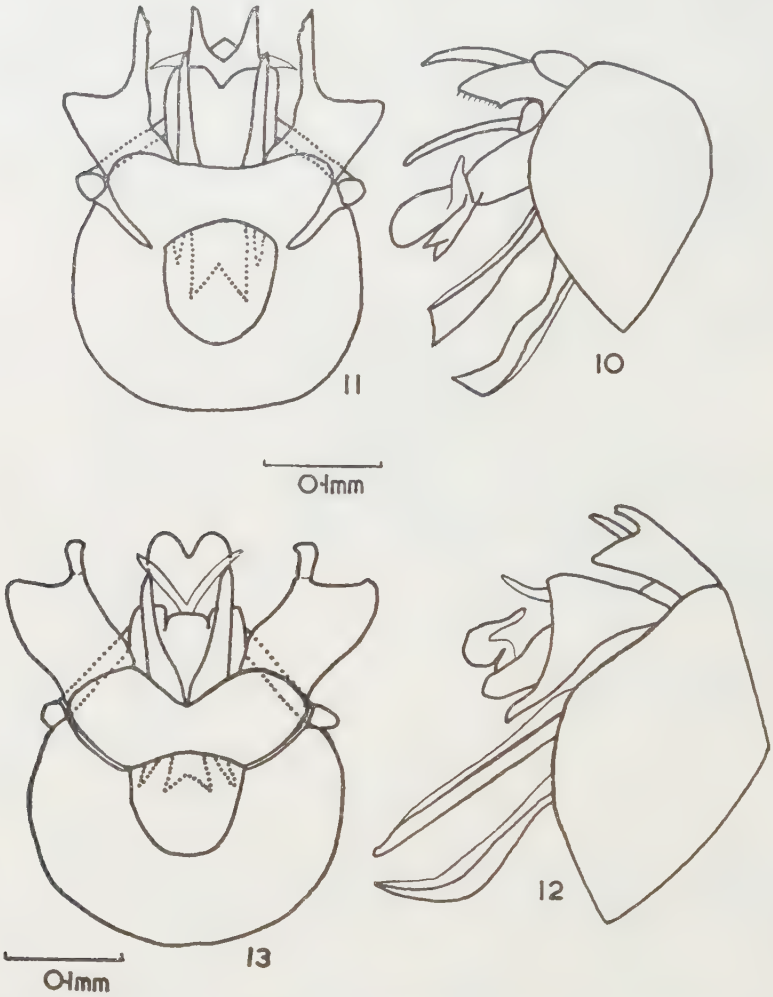


FIGS. 6–9.—(6*a*) Male genitalia of *Frutillaria chepuensis* Richards, from the right side; (6*b*) aedeagus alone from the right side. (Lettering as in figures 4 and 5; *k*, dorsal spine of aedeagus.) (7) The same, dorsal (actual ventral) view. (8) Male genitalia of *Frutillaria edenensis* Richards, from the right side. (9) The same, dorsal (actual ventral) view.

Hind tibia with a short pre-apical dorsal bristle. Wings extending well beyond scutellum, reaching one-third of the way along tergite 1 + 2. Male legs with no special modifications. Abdomen not quite twice as wide as thorax, tergites 1 + 2 not quite twice as long as tergite 3; tergites with narrow apical margins; in female tergite 6 about half as long as 5, tergite 7 still shorter and meeting sternite 7 to close the end of the abdomen, cerci not visible, tergite 3 with about 3 transverse rows of 25 short bristles, sternites each with about 2 rows of short bristles. In male, abdomen anteriorly as in female, tergite 6 only visible on left side, genitalia very large with short bristles only, anal split large oval; fifth sternite rather prominent, widely but very shallowly emarginate, with posterior margin a little raised, short bristles denser near centre.

Frutillaria kuscheli sp. n. (figs. 4 and 5)

Genital forceps in the male with a rounded outer corner, process very long, with 1 small tooth on inner side before apex. Paraphalli wide but pointed, lateral wings of aedeagus of moderate length.



Figs. 10–13.—(10) Male genitalia of *Frutillaria calceata* Richards, from the right side. (11) The same, dorsal (actual ventral) view. (12) Male genitalia of *Frutillaria stenoptera* Richards, from the right side. (13) The same, dorsal (actual ventral) view.

Chile : Chiloe I., lat. 42° S., Chepu, 3.x.58, 2 ♂ (including type) ; 2.x, 1 ♂ ; 9.x, 2 ♂.

These specimens (except the type) are now all in alcohol ; type in the museum of the University of Chile ; paratypes in the British Museum (Natural History) and in my collection.

Frutillaria chepuensis sp. n. (figs. 6 and 7)

Genital forceps with the outer corner angularly produced, process a little longer than in *F. stenoptera* sp. n. but still short, end somewhat knobbed. Paraphalli truncate at end, somewhat shoe-shaped ; lateral wings of aedeagus small.

Chile : Chiloe I., lat. 42° S., Chepu, 3.x.58, 4 ♂ (including type) ; 2.x, 2 ♂ ; 4.x, 12 ♂ ; 11.x, 2 ♂ ; 13.x, 4 ♂ ; 15.x, 2 ♂ ; 17.x, 3 ♂ (one lot labelled 200 m.).

Type and nine other males in alcohol, others on card. Type in the museum of the University of Chile ; paratypes in the British Museum (Natural History) and in my collection.

This was the commonest species at Chepu and, according to Dr. Kuschel's notes, tended to be found in somewhat drier and more elevated habitats than *F. kuscheli*, which was found on swampy ground, very near the sea. The two species were never found in the same sample of litter (13 samples examined).

Frutillaria edenensis sp. n. (figs. 8 and 9)

Genital forceps with outer corner about rectangular, process rather long and hardly knobbed at end. Paraphalli pointed, lateral wings of aedeagus wide, extreme tip of aedeagus bifid.

Chile : Chiloe I., lat. 42° S., San Pedro, 650 m., Oct. 1958, type ♂ ; Wellington I., lat. 49° S., Puerto Edén, 850 m., 8.xii.58, ♂ ; tube with no data but probably Chiloe I., Oct. 1958, 3 ♂.

The specimens are all in alcohol and the type is in the museum of the University of Chile. Paratypes in the British Museum (Natural History) and in my collection.

Frutillaria calceata sp. n. (figs. 10 and 11)

Genital forceps with outer corner angularly produced, inner lower edge with a small tooth, process rather long with 2 small teeth on inside before apex. Paraphalli short bifid ; lateral wings of aedeagus long. Anterior gonaphyses apparently reduced. Colour rather darker than in previous 3 species, face and tarsi not so obviously yellowish.

Chile : Llanquihue prov., lat. 41° 12′ S., Frutillar, 25.ix.54, 1 ♂ ; Los Riscos, 450 m., 14.ix.54, 1 ♂ (type).

Both specimens are in alcohol ; the type is in the collection of the University of Chile and the paratype in the British Museum (Natural History).

Frutillaria stenoptera sp. n. (figs. 12 and 13)

Genital forceps with outer corner angularly produced, process short and a little knobbed at the end. Paraphalli pointed, lateral wings of aedeagus long. Anterior gonapophyses apparently reduced.

Chile : Llanquihue Prov., lat. 41° 12′ S., Frutillar, 25.ix.54, ♂ type. The type specimen is headless and is in alcohol. It will be deposited in the museum of the University of Chile.

Females

Thirty-one females of *Frutillaria* were captured and some of these can be tentatively identified because they were captured with particular males, but I can find no characters to distinguish them.

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A NEW SPECIES OF *MYZUS* PASSERINI (HOMOPTERA : APHIDIDAE) FROM AUSTRALIA

By Mary Carver

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Myzus dycei sp. n.

Apterous viviparous female

Colour of living specimens : green.

Macerated specimens.—Body length, 1·47–1·97 mm. (mean 1·74). Body cuticle sclerotised, corrugated, pale to pale brown, coarsely spinulose in area posterior to siphunculi. Dorsal body hairs short, blunt and inconspicuous, 4–6 μ long except for longer hairs on seventh and eighth abdominal tergites, which are 11–18 μ and 16–30 μ long respectively ; number of hairs on eighth abdominal tergite, 4 ; ventral body hairs 10–26 μ long. Head pale to pale brown, especially on anterior half, spinulose both dorsally and ventrally ; anterior cephalic hairs long, acute, 24–33 μ long, posterior hairs shorter, 10–16 μ long ; frontal tubercles strongly convergent, rugose, and each with 4–5 hairs, 14–20 μ long. Antennae six-segmented, without secondary rhinaria, 1·08–1·31 mm. long (mean 1·22), pale, usually with segments I and VI darker ; segments I and II imbricated on ventral surface, on segment I giving way to spinules on posterior margin ; segment III evenly imbricated or only weakly so on posterior margin ; segments IV–VI imbricated ; antennal hairs short, blunt, on third antennal segment measuring 7–8 μ in length. Lengths of segments : I, 0·09–0·11 mm.; II, 0·06–0·08 mm.; III, 0·29–0·36 mm. (mean 0·34) ; IV, 0·17–0·22 mm. (mean 0·19) ; V, 0·14–0·19 mm. (mean 0·16) ; base VI, 0·09–0·11 mm.; processus terminalis, 0·26–0·33 mm. (mean 0·29). Mean value, antennal length : body length, 0·7. Rostrum extends to hind coxae ; ultimate rostral segment 0·11–0·13 mm. long, pale brown to brown, darker at extreme apex, and with 5–7 secondary hairs. Legs pale to pale brown, concolorous with body ; tarsi darker ; femora faintly and irregularly imbricated, tibiae sometimes also at base ; second tarsal joints imbricated ; first tarsal joints of fore and mid legs with 3 (more rarely 2) hairs, those of hind legs with 2 hairs ; lengths of hind joints : femur, 0·44–0·56 mm. (mean 0·5), tibia, 0·79–0·96 mm. (mean 0·87), tarsus I, 0·02–0·03 mm., tarsus II, 0·08–0·09 mm. Siphunculi 0·43–0·51 mm. long (mean 0·47) ; comparatively stout, only slightly expanded at base, slightly bent, weakly clavate on inner side of distal third quarter, then narrowing to apex, this apical portion narrower than any other portion of the siphunculus ; covered with numerous small, flat, very blunt imbrications, with about 2 rows of strongly transverse cells at apex ; flange moderately developed. Basal siphuncular width : median hind tibial width, 2 : 3·1 ; siphuncular width at clavate area : median hind tibial width, 1·7 : 2·4 ; apical siphuncular width : median hind tibial width, 1 : 1·3 ; mean value, siphuncular length : body length, 0·27. Cauda 0·14–0·18 mm. long (mean 0·16), triangular, slightly blunt at apex, with convex sides, and with faint basal constriction ; concolorous with body, 5–6 hairs in pairs on distal half. Subanal plate concolorous with body, with 9–13 hairs. Subgenital plate 0·25–0·31 mm. wide, concolorous with body, 10–12 hairs on posterior margin.

Alate viviparous female

Colour of living specimens unrecorded.

Macerated specimens.—Body length, 2·0–2·22 mm. (mean 2·06). Head and thorax brownish sclerotic ; sclerites of abdominal tergites III–VI fused into a more or less solid patch, with projecting arms on segments III and IV ; a transverse band on tergite VII ; distinct lateral sclerites on segments II, III and IV. Dorsal body hairs short, blunt, 7–13 μ long, except for longer hairs on seventh and eighth abdominal tergites, which are 20–33 μ long ; number of hairs on tergite VIII, 4–5 ; ventral body hairs acute, 14–34 μ long ; anterior and posterior cephalic hairs 16–22 μ long. Antennae six-segmented, 1·77–1·92 mm. long (mean 1·85) ; segments I and II brown,

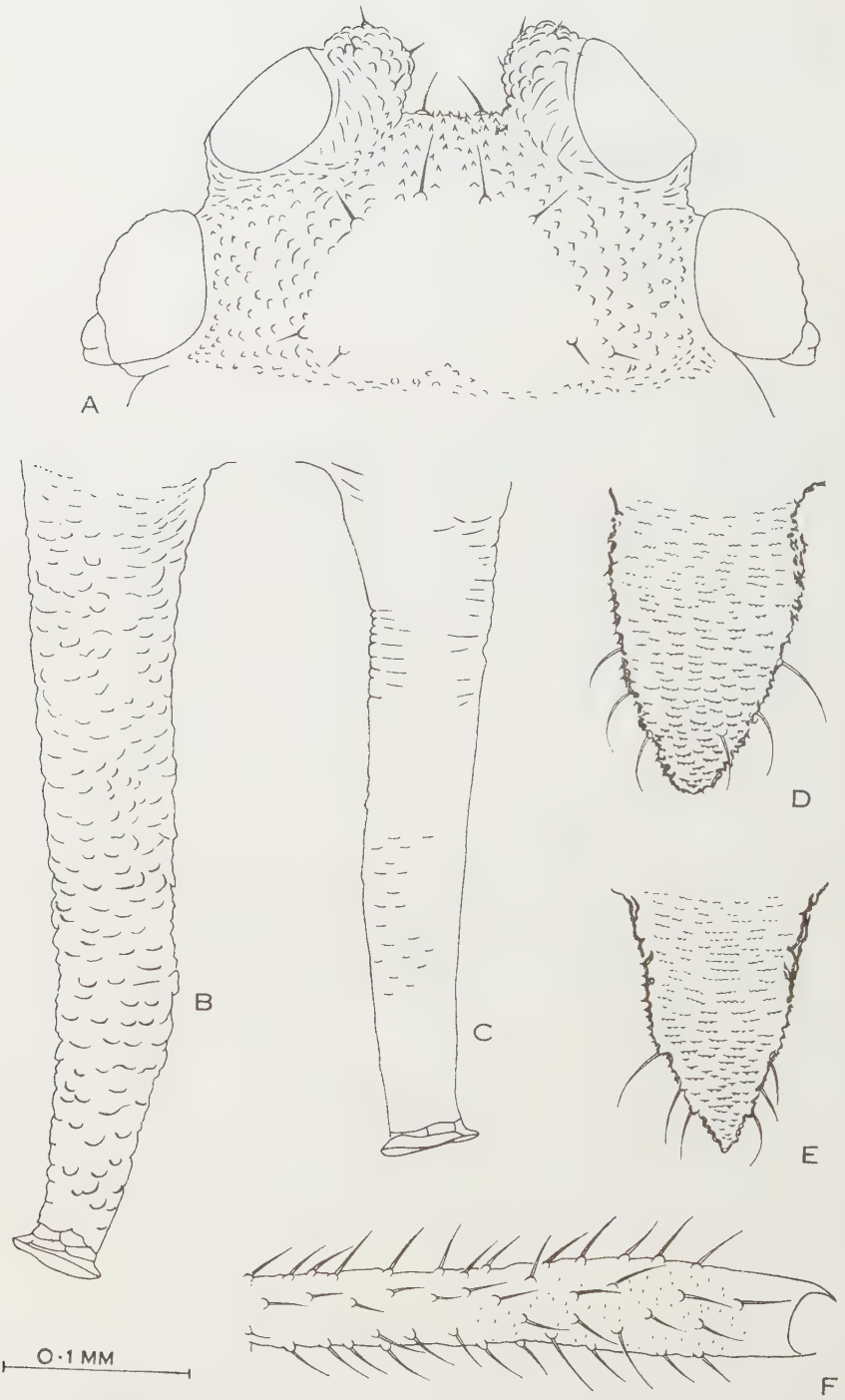

Fig. 1.—*Myzus dycei* sp. n. Apterous viviparous female : *A*, head ; *B*, siphunculus ; *D*, cauda. Alate viviparous female : *C*, siphunculus ; *E*, cauda. Nymph (fourth instar) : *F*, distal half of hind tibia.

concolorous with head ; segment III light brown, usually slightly paler at extreme base, following segments becoming progressively paler, processus terminalis pale brown to almost colourless ; length of hairs on antennal segment III, 7–14 μ. Number of secondary rhinaria on III : 13–23, extending over whole length of segment, except extreme base, not situated in a single row, although most of rhinaria are on posterior edge of segment ; number of secondary rhinaria on IV : 1–2. Lengths of segment : I, 0·09–0·11 mm. ; II, 0·07–0·09 mm. ; III, 0·47–0·51 mm. (mean 0·5) ; IV, 0·3–0·35mm. (mean 0·33) ; V, 0·24–0·27 mm. (mean 0·25) ; base VI, 0·14–0·16 mm. (mean 0·15) ; processus terminalis, 0·41–0·46 mm. (mean 0·44). Mean value, antennal length : body length, 0·9. Rostrum extending to between first and second coxae ; ultimate rostral segment brown, 0·12–0·13 mm. long, with 6–7 secondary hairs. Femora of fore legs brown on apical half, those of mid and hind legs brown on apical two-thirds, paler at base ; tibiae brown on apical quarter, rest of segment paler ; chaetotaxy of first tarsal segments, 3, 3, 2 ; lengths of hind segments : femur, 0·57–0·63 mm. (mean 0·60), tibia, 1·13–1·23 mm. (mean 1·17), tarsus I, 0·02–0·03 mm., tarsus II, 0·08–0·09 mm. Wing veins clear. Siphunculi 0·34–0·39 mm. long (mean 0·37), brown, more slender than in apterous form, tapering or very weakly clavate on distal half, only slightly narrower at apex ; transversely creased on basal third ; sparsely imbricated, imbrications usually confined to the middle ; with 1–2 rows of strongly transverse cells at apex. Basal siphuncular width : median hind tibial width, 2·4 : 3 ; siphuncular width at clavate area : median hind tibial width, 1·3 : 1·9 ; apical siphuncular width : median hind tibial width, 1·1 : 1·2 ; mean value, siphuncular length : body length, 0·18. Cauda 0·11–0·15 mm. long (mean 0·14), pointed at apex, hardly if at all constricted at base ; mostly pale, with 5–6 hairs in pairs. Subanal plate mostly pale, with 9–13 hairs. Subgenital plate brown, with 14–16 hairs on posterior margin ; width, 0·24–0·29 mm. (mean 0·26).

Nymphs

Fourth instar nymphs with a comparatively small number of minute, inconspicuous spinules between hairs on hind tibiae. First and second instar nymphs without such spinules.

Host, *Urtica incisa* Poir.

Locality.—New South Wales : Terry-Hie-Hie, 29.viii.1951 (*A. L. Dyce*).

Types.—Holotype, morphotype alata, 13 paratypes (9 apterae, 4 alatae), at present in the Division of Entomology Museum, Canberra. Some paratypes will be deposited in the collection of the British Museum (Natural History), London.

Except for the presence in immature forms of only a comparatively small number of inconspicuous spinules on the hind tibiae, and the presence in the alatae of secondary rhinaria on the fourth antennal segment, *Myzus dycei* is a typical *Myzus*.

It can be compared with *Myzus lythri* (Schrank), to which it appears to be similar. Apterae of *M. dycei* differ from *M. lythri* in the first tarsal chaetotaxy, which in *M. lythri* is normally 3.3.3. and in *M. dycei* is 3.3.2. Furthermore, in *M. lythri*, the median (third) seta of the first tarsal segment is thicker and longer than the lateral ones, whereas in *M. dycei* it is like the lateral setae, but shorter. In *M. dycei* the anterior cephalic hairs are long (24–33 μ), acute, whereas in *M. lythri* they are short (10 μ). In *M. dycei* the hairs on abdominal tergite VIII measure 16–30 μ ; in *M. lythri*, 13–16 μ . The frontal tubercles of *M. lythri* are shallower and less convergent than in *M. dycei*. In proportion to the body length, the antennae of *M. lythri* are comparatively shorter than those of *M. dycei*. In *M. dycei*, the number of secondary hairs on the ultimate rostral segment are 5–7 ; in *M. lythri*, 2. The siphunculi of apterous *M. lythri* are not clavate, and are more closely imbricated, more slender, and less narrowed at the apex than in *M. dycei*. Alatae of *M. dycei* can be distinguished from those of *M. lythri* by the presence in *M. dycei* of secondary rhinaria on the fourth antennal segment ; and by the siphunculi, which in *M. lythri* are more slender than in *M. dycei*, almost cylindrical, and imbricated for most of their length.

Acknowledgments

The author is greatly indebted to Dr. D. Hille Ris Lambers and Dr. V. F. Eastop for their valuable advice and criticism, and to Mr. L. A. Marshall who prepared the illustrations.

NEW SPECIES OF *LESTEVA* LATREILLE FROM THE EASTERN MEDITERRANEAN (COLEOPTERA : STAPHYLINIDAE)

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AND

W. O. Steel
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Three of the forms described herein were amongst material received for identification from Dr. Z. Kaszab of the Hungarian National Museum. They had been examined by Dr. O. Scheerpeltz before the war and given names, but no descriptions were published. In correspondence, Dr. Scheerpeltz stated that he was no longer in a position to describe these and would be pleased if we would deal with them. We have therefore done this, using the Scheerpeltz names.

Additional *Lesteva* material received from Dr. G. Fagel yielded two more new eastern Mediterranean species.

We are indebted to Drs. Fagel and Kaszab for the opportunity of studying their specimens.

Lesteva nitidicollis sp. n. (Scheerpeltz, *in litt.*) (figs. 1, 5, 6)

Head, pronotum and abdomen blackish-brown, elytra and apex of abdomen sometimes lighter. Antennae yellowish-brown, legs light yellowish-brown with apices of the femora and, sometimes, the tibiae darker, palpi light yellowish-brown. Length : 3·9–4·6 mm., without abdomen, 2·9–3·3 mm. General shape as in figure 1.

Head moderately shining, with distinct median furrows which are somewhat curved so that the space between them is concave in outline. Punctures fine and close, separated, except on clypeus, by distinctly less than their diameter ; surface between punctures without ground sculpture except for traces of a polygonal network on neck.

Pronotum convex, about as shining as head, side margins visible from above except at extreme front, basal impression distinct. Punctures as fine as or a little finer than those on head, separated on the disc by rather more than their diameter, becoming somewhat less close towards sides ; without visible ground sculpture.

Elytra somewhat flattened, moderately shining, side margins rather broad as seen from above. Punctures as fine as those on head, separated by rather more than their diameter, without ground sculpture between them.

Abdomen closely punctured, duller than front parts, punctures very much finer than those on elytra ; surface between punctures with a ground sculpture consisting of a fine, lightly marked, polygonal network.

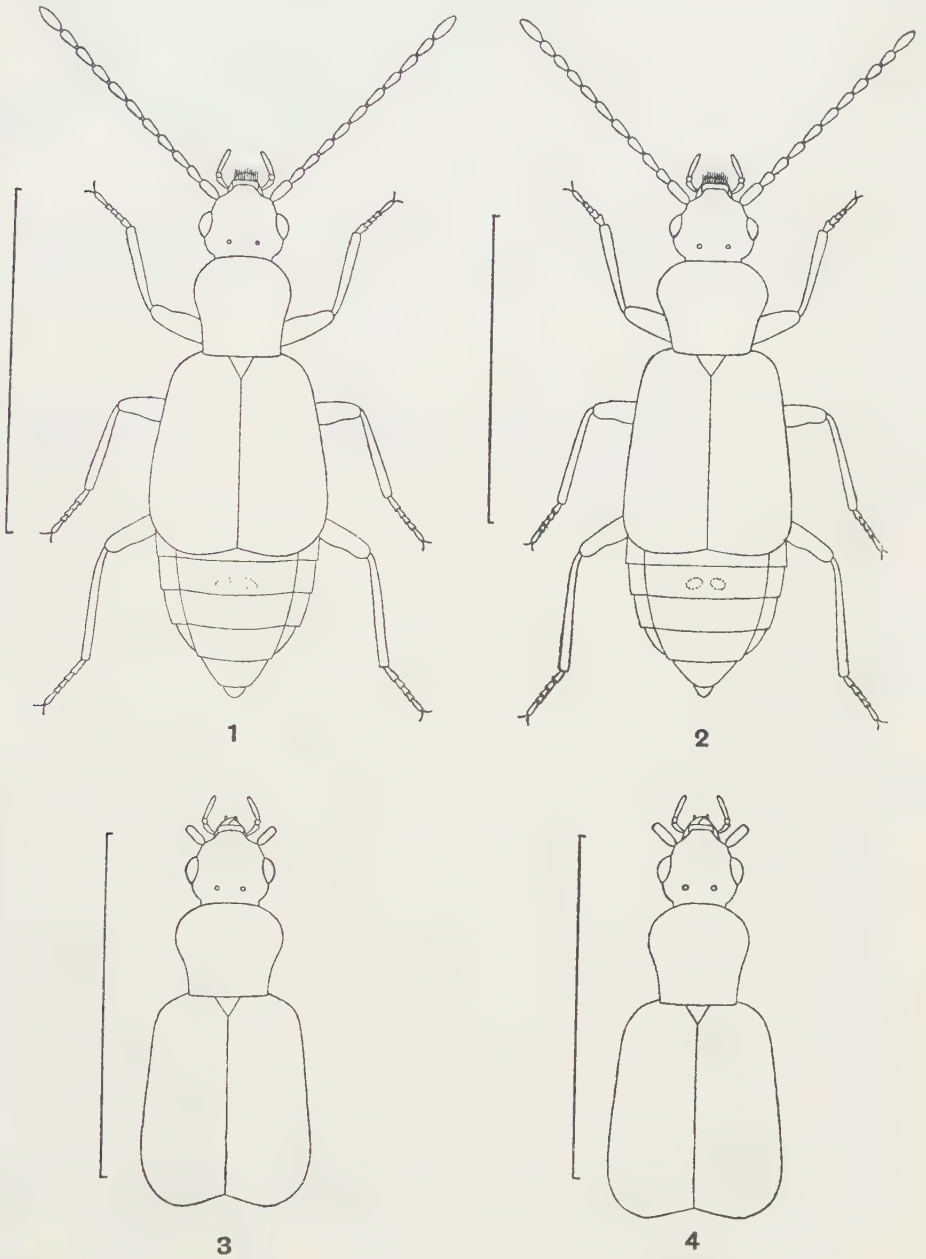
Hind tarsi about half as long as tibiae, first segment a little longer than following 2 together, longer than last.

Aedeagus as in figures 5 and 6, ventral surface of median lobe with a sharp median longitudinal keel.

Crete : Antr. Jovis, Mt. Ida, 1906 (*Biro*). Holotype ♂, allotype ♀, and 8 paratypes in the Hungarian National Museum, 5 paratypes in the authors' collections.

This species resembles *L. hanseni* Lohse in the fine puncturation, large eyes, slender antennae and long basal segment of posterior tarsi, as well as in the somewhat

flattened elytra, which are widened behind with the side margin (actually the epipleural keel) rather broad as seen from above. It differs, however, in the distinctly narrower pronotum and lighter colour.



FIGS. 1–4.—(1) *Lesteva nitidicollis*, sp. n. (2) *L. szekessyi*, sp. n. (3–4) Head, pronotum and elytra of: (3) *L. brondeeli*, sp. n.; (4) *L. latipes*, sp. n. (Scale in each case = 3 mm.).

Lesteva brondeeli sp. n. (figs. 3, 7, 8)

Head and pronotum pitchy-brown, abdomen a little lighter, elytra reddish-brown. Antennae and legs reddish-brown, knees somewhat darker. Palpi yellowish-brown. Pubescence yellowish. Length: 4·8 mm., without abdomen 3·3 mm. General shape of front parts as in figure 3.

Head moderately shining, with distinct median furrows which are curved so that the space between them is concave in outline. Punctures fine and close, separated for the most part, except on clypeus, by less than their diameter ; surface between punctures without ground sculpture. Antennae with fourth to eighth segments more than twice as long as their greatest breadth.

Pronotum convex, as shining as head, side margins visible from above except at extreme front, basal impression very weak. Punctures very fine on disc, somewhat coarser towards base and sides, separated on disc by about twice their diameter, without ground sculpture between them.

Elytra rather convex, as shining as head and pronotum, side margins very narrow as seen from above ; on each side of suture on anterior half with a very shallow longitudinal impression. Punctures coarser than those on pronotum, separated for the most part by almost twice their diameter ; without ground sculpture between them.

Abdomen closely punctured, duller than front parts, punctures much finer than those on elytra ; surface between punctures with a ground sculpture in the form of a fine polygonal network.

Hind tarsi rather more than half as long as tibiae, first segment as long as following 2 together.

Aedeagus as in figures 7 and 8, ventral surface of the median lobe with a weak median longitudinal keel.

Crete occident. : Topolia, xi.1953 (*J. Brondeel*). Type ♂, unique, in the collection of Dr. G. Fagel.

Similar to the preceding in size, colour and lustre but quite different in the elytra, which are much less widened behind with the side margins very narrow as seen from above, the broader pronotum, the rather shorter basal segment of the posterior tarsi and the structure of the aedeagus.

Lesteva szekessyi sp. n. (Scheerpeltz, *in litt.*) (figs. 2, 9, 10)

Body, legs, antennae and palpi brownish-yellow. Length : 4·8 mm., without abdomen 3·4 mm. General shape as in figure 2.

Head moderately shining, median furrows straight and shallow, deeper between the eyes. Punctures fine and close, separated, except on clypeus, by distinctly less than their diameter ; without ground sculpture.

Pronotum as shining as head, not very convex, side margins wholly visible from above. On each side of middle on about posterior half with a very shallow longitudinal impression which unites with the equally shallow basal impression to form a U-shaped fovea. Punctures similar to those on head, strong and very close, separated by distinctly less than their diameter and almost coalescing in places ; without ground sculpture between punctures.

Elytra as shining as head and pronotum, side margins distinct from above, not very broad. Punctures similar to those on pronotum but less close, separated by their diameter or a little less, no ground sculpture between punctures.

Abdomen less shining than front parts, closely and finely punctured, punctures much finer than those on elytra, between them with a ground sculpture consisting of a fine polygonal network.

Hind tarsi less than half the length of tibiae, first segment only a little longer than second, about as long as the last.

Aedeagus as in figures 9 and 10, ventral surface of the median lobe obtusely angled longitudinally in the middle towards apex, elsewhere rounded.

Crete : Antr. Jovis, Mt. Ida, 2200 m., 1906 (*Biro*). Holotype ♂ and allotype ♀ in the Hungarian National Museum.

L. szekessyi may be separated from previously described species of similar size by the relatively small eyes and the strong and very close puncturation of the pronotum. The form of the head and pronotum is rather similar to *L. villardi* Rey but the two species are otherwise very different.

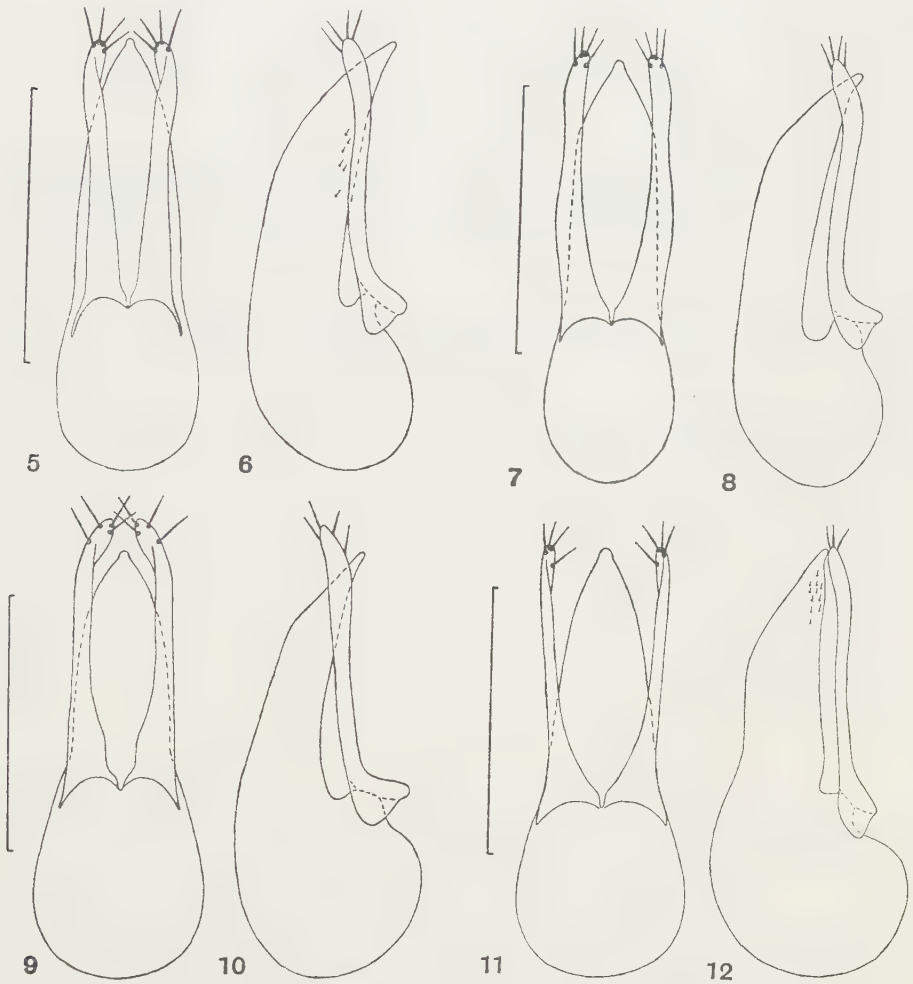
The female allotype is certainly immature and the holotype, which is a little darker in colour, may also be immature.

Lesteva latipes sp. n. (figs. 4, 11, 12)

Body blackish-brown, elytra sometimes a little lighter. Antennae, legs and palpi reddish-brown. Pubescence yellowish. Length : 4·7 mm., without abdomen 3·3 mm. General shape of front parts as figure 4.

Head moderately shining, with rather deep median furrows, which are curved so that the area between them is concave in outline. Punctures moderately fine, separated for the most part, except on clypeus, by distinctly less than their diameter, without ground sculpture between them. Antennae long and slender, third to eighth segments scarcely differing in length, each more than 3 times as long as its greatest breadth.

Pronotum convex, as shining as head, side margins visible from above except at extreme front. Anteriorly with an indistinct median flattening, basal impression U-shaped and equally indistinct. Punctures similar to those on head but less close, separated by about their diameter, without ground sculpture between them.



FIGS. 5–12.—Ventral and lateral views of aedeagus of: (5–6) *L. nitidicollis*; (7–8) *L. brondeeli*; (9–10) *L. szekessyi*; (11–12) *L. latipes*. (Scale in each case = 0·5 mm.)

Elytra as shining as head and pronotum, rather convex, side margins narrow as seen from above. On each side of the suture on anterior two-thirds a longitudinal impression which gives the suture itself a raised appearance. Punctures distinctly coarser than those on pronotum and much less close, separated for the most part by more than their diameter, without ground sculpture between them.

Abdomen duller than front parts, the punctures close and very much finer than those on elytra, between them with a ground sculpture in the form of a fine polygonal network.

Intermediate and posterior tarsi rather flattened, with basal segments distinctly broader than is usual for the genus. Posterior tarsi more than half as long as tibiae, first segment as long as following 2 together, longer than last.

Aedeagus as in figures 11 and 12, ventral surface of median lobe rounded.

Cyprus : Prodromos, Trikouche, xi.1953 (*J. Brondeel*). Type ♂ and two paratypes in the Fagel collection, one further paratype in coll. Lohse.

This species differs markedly from all others in the genus known to us in the structure of the intermediate and posterior tarsi. This may, however, be a secondary sexual character as all the examples seen are males. In general facies, *latipes* is similar to *transcaspica* Bernhauer but is smaller.

Lesteva longelytrata cretica subsp. n. (Scheerpeltz, *in litt.*)

This species is so close to *L. longelytrata maura* Erichson that it is only necessary to point out the differences.

Antennae even shorter, with seventh segment only very slightly longer than broad and tenth as long as broad. Pronotum and elytra more closely and rather more strongly punctured. Elytra reddish-brown, usually with a more or less extensive blackening on the disc, which can extend so far as to leave only the side margins and hind angles brown ; the 2 colours are not sharply differentiated.

Crete : Antr. Jovis, Mt. Ida, 2200 m., 1906 (*Biro*). Holotype ♂, allotype ♀ and 8 paratypes in the Hungarian National Museum, 4 paratypes in the authors' collections.

There is some variation in the strength of the puncturation of this insect and Dr. Scheerpeltz had separated the series into two " species ". There is, however, no justification for this.

THE NEOTROPICAL GENUS *RHINACLOA* REUTER (HEMIPTERA-HETEROPTERA: MIRIDAE) FIRST RECORDED FROM QUEENSLAND

By M. S. K. Ghauri

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Among some Hemiptera received for identification from Queensland was found a new species belonging to the genus *Rhinacloa* Reuter (1875). As members of this genus are hitherto known only from Neotropical and Nearctic Regions (Carvalho, 1955), I take this opportunity to describe the following new species, which is the first to be reported from the Australian Region.

Rhinacloa queenslandana sp.n. (Fig. 1–9.)

Colour.—Golden yellow; eyes reddish; membrane light brown; last segment of rostrum, apical one-third of first antennal segment, a basal and an apical suffusion on second antennal segment, spines with basal round spots on femora and tibiae and hair and scales on the entire dorsum dark brown.

Measurements (in mm.)—Male: length 2·7; width 0·98 (near cuneus); head 0·18 long, 0·63 wide; vertex 0·25 wide; length of antennal segments—first 0·21, second 0·63, third 0·39 and fourth 0·24; rostrum, length first, second and fourth segments 0·25 and third 0·21; pronotum medially 0·42 long, front margin (in line with middle of eyes) 0·42 and hind margin 0·91 wide; scutellum 0·35 long, 0·46 wide.

Female: length 2·7; width 1·2; head 0·18 long, 0·65 wide; vertex 0·29 wide; length of first, second, third and fourth antennal segments 0·21, 0·59, 0·34 and 0·21; rostrum, length first segment 0·26, second 0·23, third 0·21 and fourth 0·25; pronotum length 0·42, width at front 0·49 and at hind margin 0·96; scutellum 0·35 long, 0·49 wide.

Male elongate oval, female comparatively wider; membrane extending much beyond the abdomen; frons vertical; clypeus small, elongate; antennal segments of male (especially second) more robust than that of female; first antennal segment narrow at base, reaching beyond the clypeus, bearing two hairs with dark round basal spots similar to, though slightly smaller than, those on femora and tibiae; second segment at base narrower than first, incrassate towards apex; third and fourth slender and each shorter than second, fourth subequal to first; rostrum reaching between the hind coxae. *Pronotum:* length of anterior margin almost equal to median length, posterior margin subtruncate; legs well developed, femora strong, particularly the hind ones; a row of concolorous stiff setae on anterior margin of front coxae only.

Male genitalia.—As in figures 5–9.

Holotype ♂ and 4 ♀ allotypes, Australia: Gatton College, Queensland, on cabbage, 9.xi.1948 (*Mr. A. May*); coll. no. 2060; C.I.E. coll. no. 17044; holotype ♂ and 3 allotype ♀ deposited in the British Museum (Natural History), London, and one allotype ♀ returned to the Department of Agriculture, Queensland.

Remarks.—This species is very similar to that described as *Rhinacloa pallida* by Reuter (1908) from Mexico (of which specimens were not available for comparison), but apparently differs in having the mesosternum concolorous with the general body and in the measurements of the pronotum and scutellum.

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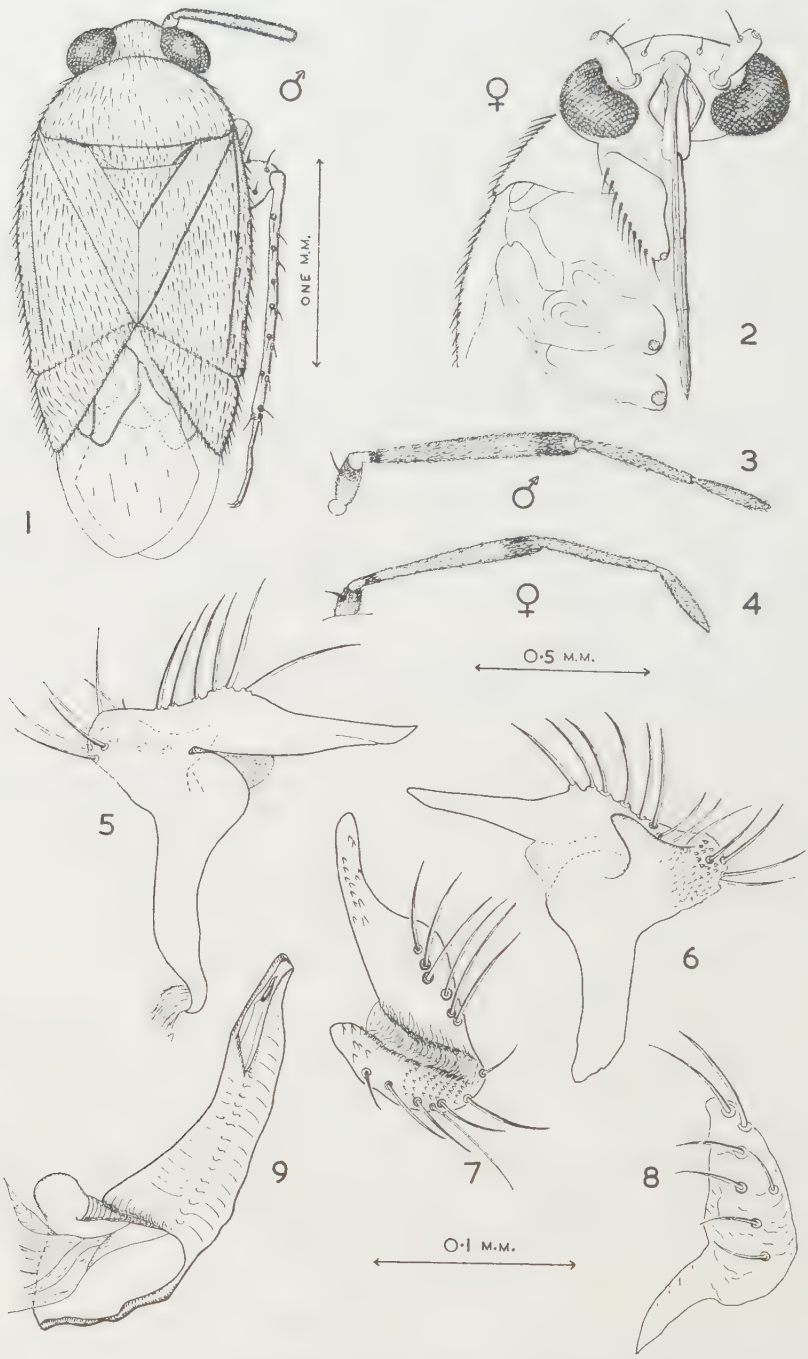

FIGS. 1–9.—*Rhinacloa queenslandana* sp. n. (1) Dorsal view of male, scales omitted ; (2) ventral view of head and thorax of female ; (3) male antenna ; (4) female antenna ; (5) left paramere, dorsal view ; (6) the same, ventral view ; (7) the same, external view ; (8) right paramere ; (9) theca.

LECTOTYPE SELECTION FOR *TABANUS GUINEENSIS* WIEDEMANN, 1824, AND NEOTYPE DESIGNATION FOR *TABANUS SUGENS* WIEDEMANN, 1828 (DIPTERA : TABANIDAE)

By R. W. Crosskey

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Lectotype selection for *Tabanus guineensis* Wiedemann

The type material of *Tabanus guineensis* Wiedemann, 1824, consists of one male and one female syntype (type locality : " Guinea ") in the Zoological Museum in Copenhagen. The syntypes were examined by Dr. C. B. Philip in 1953, and he found that the male and female are not conspecific. The female syntype has also been examined by Mr. H. Oldroyd and by me, and we have found that it is indistinguishable from *Tabanus subangustus* Ricardo, 1908, the female holotype of which is in the British Museum (Natural History) ; the male syntype of *guineensis*, on the other hand, is definitely not the same as *subangustus*, but may belong to *Tabanus taeniola* Palisot de Beauvois, 1807.

Surcouf *in* Surcouf and Ricardo (1909 : 94) listed *T. guineensis* Wiedemann ♀ (mis-spelled as *guinensis*) as synonymous with *T. taeniola* P. de B., although he had not seen Wiedemann's types, but he was evidently not fully satisfied about this synonymy since (*op. cit.*: 96) he remarked " Le *Tabanus guineensis* ♀ de Guinée, décrit par Wiedemann peut être identique au *Tabanus taeniola* ♀ P.B." The male he thought must belong to another species (" quant au *Tabanus guineensis* ♂ Wiedemann, il doit appartenir à une autre espèce."), although later (1922) he listed the male as a synonym of *taeniola*. In fact the situation is almost the reverse of Surcouf's earlier views, since the female syntype is definitely not *taeniola* and the male syntype might be. Subsequent authors have followed Surcouf and listed *guineensis* as a synonym of *taeniola* (Bequaert, 1930 ; Efflatoun, 1930 ; Oldroyd, 1954).

The patterned-group of African *Tabanus* presents considerable difficulty in taxonomy, and it is very desirable that species should be based on female types, since males are rarely collected and in many species are still unknown (*see* Oldroyd, 1954). It is impossible to be certain that Wiedemann's male *guineensis* is the same as *taeniola*, and it is therefore preferable for the female syntype to be selected as lectotype, even though *subangustus* Ricardo then falls as a synonym of *guineensis* Wiedemann.

Dr. Philip, when he saw the syntypes of *guineensis* in Copenhagen in 1953, attached a label to the female indicating that he had selected it as lectotype. In the following year Zimsen (1954), in her list of Wiedemann's types in the Zoological Museum in Copenhagen, recorded (footnote, p. 10) " Lectotype selected 1953 by C. B. Philip ", without mentioning the sex selected. Dr. Philip's attachment of the label and Zimsen's footnote do not, however, constitute valid selection of the lectotype, and (having already obtained Dr. Philip's approval) I therefore select here myself the female syntype as lectotype of *Tabanus guineensis* Wiedemann, 1824. Through the kindness of Dr. S. L. Tuxen of the Zoological Museum, Copenhagen, I have been able to see the female syntype and have labelled it as lectotype accordingly. The lectotype selection will date from my present validation.

Following this lectotype selection *Tabanus guineensis* Wiedemann, 1824, is not synonymous with *Tabanus taeniola* Palisot de Beauvois, 1807. The synonymy of *T. guineensis* is now as follows :

Tabanus guineensis Wiedemann, 1824

Tabanus guineensis Wiedemann, 1824, *Analecta ent.:* 21. Lectotype ♀, Guinea. In Universitetets Zoologiske Museum, Copenhagen [not in Zoologisches Museum der Humboldt-Universität, Berlin, as given by Oldroyd (1954)].

Tabanus subangustus Ricardo, 1908, *Ann. Mag. nat. Hist.* (8) **1** : 314. Holotype ♀, S. Nigeria : Abutshi, R. Niger, 1903 (*A. Braham*). In the British Museum (Natural History). **Syn. nov.**

Neotype designation for *Tabanus sugens* Wiedemann

Tabanus sugens Wiedemann, 1828, was described from a single female, type locality " Guinea ". With the original description Wiedemann (1828 : 140) recorded that the specimen was " In der Sammlung Sr. Konigl. hoheit bes Prinzen Christian zu Koppenhagen ". It has been recorded by Zimsen (1954) that the collection of Prince Christian, later King Chr. VIII of Denmark (1786–1848), was already nearly ruined because of neglect in 1830. Only a few specimens of this collection now exist in the Zoological Museum in Copenhagen, and none of Wiedemann's type-specimens are among them. The type of *Tabanus sugens* Wiedemann must be regarded as lost, and has been recorded as lost by Zimsen (*op. cit.:* 10).

Since the original description, *T. sugens* has not been properly recognised and has been regarded as a doubtful species allied to *Tabanus taeniola* Palisot de Beauvois. Surcouf *in* Surcouf and Ricardo (1909 : 103–104) only repeated Wiedemann's description and pointed out that the antennae are described as black (a distinction from *taeniola*). Bequaert (1913) recorded one specimen from the Belgian Congo under the name *T. sugens*, but later (1930) decided that this was an aberrant specimen of *T. taeniola*. Oldroyd (1954) has referred to *T. sugens* several specimens (♀) which are undoubtedly close to *T. taeniola*, but more distinctly patterned, smaller, with a black scutellum and blackish antennae (and some other minor differences).

More recently I have collected a number of specimens from Nigeria which agree perfectly with those referred to *sugens* by Oldroyd, and other identical specimens have been collected by Dr. M. Ovazza in Mali and Upper Volta (Ovazza and Valade, 1958). These specimens all clearly belong to a species distinct from, although very closely related to, *T. taeniola*. Rather than create a new name it is preferable to apply the name *T. sugens* Wiedemann to this species, since Wiedemann's very brief description fits it well, especially with regard to the black antennae. As the patterned-group of African *Tabanus* is very difficult taxonomically, with complexes of closely-allied species differing by few tangible characters, it is desirable in the case of *T. sugens* for a neotype to be designated, so that this species can in future be clearly recognised and distinguished from closely allied species.

A description of the neotype is given below with a statement of the characters distinguishing it from the nearest allied species (*T. taeniola*). It is to be noted that the specimen chosen as neotype is from Nigeria, agreeing as nearly as possible with the original type locality which was given as " Guinea " without any other information.

Description of neotype of *Tabanus sugens* Wiedemann

Female : Head.—Eyes bare. Occiput pale yellowish-white, hairs white. Vertex with greyish-white tomentum posteriorly and yellowish tomentum near eye-margins, with trace of a W-shaped red-brown untomented area ; hairs black. Frons broad, only slightly tapering towards subcallus, very dark reddish-brown (almost blackish) in ground colour with yellowish and greyish-white tomentum and darker tomentum on either side of upper callus ; hairs black ; frons index 3·9. Calli very dark reddish-brown (almost blackish), lower callus more or less square and very narrowly separated from eye-margins ; upper callus lance-shaped, separated from lower callus by a lightly tomented area. Subcallus yellowish-white. Face and parafacials white, hairs white. Palpi yellowish-white, second segment with numerous strong black hairs laterally on the apical two-thirds,

otherwise with white hairs only. Antennae : first segment blackish with trace of reddish colour ventrally, tomentum grey, hairs white below and black dorsally ; second segment reddish-black with terminal fringe black ; third segment more or less blackish with reddish area basally ; terminal segments blackish.

Thorax.—Scutum with boldly marked pattern of distinct grey sublateral stripes, fine short median grey line, grey side-margins and a less distinct grey band behind suture lying between sublateral stripe and pale side-margin ; ground colour of scutum blackish-brown ; recumbent hairs silky and pale yellowish-white on sublateral stripes, median line and lateral and anterior margins ; erect hairs black. Notopleural lobes reddish with long blackish erect hairs, and some recumbent silky yellowish-white hairs. Scutellum entirely blackish-brown ; hairs long and black including all marginal hairs, only very few pale silky recumbent hairs in extreme antero-lateral corners. Pleura very pale whitish-grey, very faintly tinged reddish on upper parts of mesopleura ; pleural hairs white.

Legs.—Coxae pale grey with long white hairs. Femora grey, anterior femora black and untomented on inner surfaces ; hairs white with very few black hairs dorsally. Anterior tibiae pale yellowish on basal three-fifths, black on apical two-fifths, hairs white on pale areas except for a very few minute erect dark hairs, hairs entirely black on black apices ; mid and hind tibiae yellowish-orange with mainly white hairs, but with some very small black hairs principally along dorsal surface of hind tibiae. Fore tarsi black, mid and hind tarsi reddish-black ; hairs black, ventral spines of mid and hind tarsi red. Pulvilli reddish.

Wings.—Clear, hyaline, without colour tinge, veins brown ; stigma yellowish ; vein R_4 without appendix. Halteres yellowish-orange with yellowish-white apices. Squamae pale brownish, fringe hairs white.

Abdomen.—Dorsum with very distinct complete pattern of three longitudinal stripes ; median stripe whitish, more or less parallel-sided, reaching to sixth tergite ; sublateral stripes pale coffee-coloured and distinct to hind margin of fourth tergite, but evanescent on fifth, completely separated from median stripe and clear-cut externally. Lateral margins of each tergite narrowly yellowish. Ground colour of first three tergites orange or orange-brown, ground colour of other tergites dark brown to blackish ; second tergite with narrow dark area on either side of median stripe. Hairs of dorsum pale yellow on sublateral stripes and on median stripe, white on lateral margins, black on dark areas ; abundant sub-erect black hairs also on median stripe among the pale recumbent hairs ; hind margins of tergites with black fringe-hairs, except on median stripe. Venter orange basally, darkening to blackish apically, hairs mostly pale on paler areas, dark medially on dark areas, posterior fringe hairs of each sternite pale.

Measurements.—Body length : 12·8 mm.; wing : 10·8 mm. Frons width at vertex : 0·62 mm. ; at subcallus : 0·56 mm.

Neotype ♀, Northern Nigeria : Niger Province, Diko, 9. vii. 1956 (*R. W. Crosskey*), on cattle. In the British Museum (Natural History).

Tabanus sugens is very closely allied to *T. taeniola* P. de B. and is distinguished as follows :—

Scutellum black or blackish-brown, without reddish apex, apical margin with entirely black hairs ; antennae blackish, only noticeably reddish on base of third segment ; frontal calli dark reddish-brown or nearly black, lower callus quadrate ; mesonotal pattern boldly marked, ground colour of scutum blackish-brown with only traces of a reddish tinge ; size smaller, length usually about 13 mm. (12·5–14·5 mm.) . . . . . **T. sugens** ♀

Scutellum dark grey basally (with heavy tomentum) and brick-red or orange-red apically, apical margin with numerous pale yellow silky hairs in addition to black hairs ; antennae extensively reddish-orange on basal half at least ; frontal calli yellowish-red, occasionally pale reddish-brown, lower callus usually slightly higher than broad with the upper angles more rounded ; mesonotal pattern indistinctly marked, ground colour of scutum paler with usually an extensive reddish tinge ; size larger, length usually about 16 mm. (14–18·5 mm.) . . . . . **T. taeniola** ♀

The male of *sugens* is unknown.

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A NEW SPECIES OF *TETRANEURA* HARTIG (HOMOPTERA : APHIDIDAE)

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AND

A. N. Basu

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Tetraneura heterohirsuta sp. n.

Apterous Viviparous Female

Macerated specimens : body globular, 1·98–2·66 mm. long ; maximum width, 1·45–2·12 mm. ; tergum membranous, pale to brownish, with brown transverse bands on tergites VII and VIII. Head and body indiscriminately covered with short, fine hairs, 0·04–0·11 mm. long ; numerous on the head, thorax and anterior abdominal segments, caudad rather sparse. Pairs of long, stout, marginal hairs, 0·12–0·26 mm. long, variably present on abdominal segments II–VII. Two to six (usually 2–3) spinal hairs, such as above, on tergites VII and VIII ; also 1–2 occasionally present on tergites IV to VI. Wax plates distributed on head, thorax and 7 anterior abdominal segments as follows : head with a large pair on frons, 0·04 mm. diameter, and 2–3 small spinal pairs on vertex ; prothorax with 1 marginal pair, 0·05–0·06 mm. diameter, and 1 small spinal pair ; mesothorax, metathorax and abdominal segments I–V each with 1 small spinal pair and 1 small pleural pair, 0·007–0·03 mm. diameter, and a larger marginal pair (which appear ventral in mounted specimens), 0·02–0·05 mm. diameter ; abdominal segments VI and VII each with 1 spinal and 1 marginal pair. Wax plates are round to ellipsoidal, with slightly scalloped edges, surrounded by a faintly sclerotic area ; mostly 1-facetted, but occasionally the marginal plates on prothorax and abdominal segment VII and, more rarely, those on mesothorax, metathorax and abdominal segments V and VI possess in addition 1–2 smaller facets. Head pale brownish sclerotic. Eyes simple, 3-facetted. Antennae 0·41–0·58 mm. long, brown, usually 5-segmented, but occasionally 6-segmented, due to an incipient or complete division of segment III. Primary rhinaria ciliated ; segment III in 5-segmented forms occasionally with 1–2 transversely oval rhinaria-like structures (these may merely represent an incipient division of the third segment) ; segment IV, in one specimen, with a circular rhinarium-like structure. Hairs on segment III, 0·03–0·04 mm. long. Processus terminalis very short and peglike, with 1 apical, 1 subapical and 2 hairs near base. Segment I wrinkled at base ; IV faintly imbricated on apical half or less ; V imbricated. Lengths of segments in 5-segmented forms : I, 0·06–0·08 mm. ; II, 0·06–0·09 mm. ; III, 0·09–0·14 mm. ; IV, 0·14–0·23 mm. ; V, 0·05–0·07 mm. Lengths of segments in 6-segmented forms : III, 0·08–0·11 mm. ; IV, 0·05–0·06 mm. ; V, 0·19–0·22 mm. ; VI, 0·05–0·06 mm. Antennal length/body length, 0·18 : 0·26. Rostrum extends to hind coxae; brown ; apical segment fairly broad and blunt, 0·2–0·23 mm. long, with 20–35 hairs (including the pre-apical hairs). Mesosternal furca sessile. Legs brown ; femora wrinkled on anterior side ; tarsi 1-segmented ; hind tarsus with 7–10 (usually 10) hairs. Length of hind femur, 0·30–0·49 mm. ; hind tibia, 0·31–0·56 mm. ; hind tarsus, 0·08–0·09 mm. Stigmal plates brownish, stigmal pori reniform. Siphuncular cone brown ; width at base, 0·09–0·2 mm., diameter siphuncular aperture, 0·04–0·05 mm. Cauda small, brown, bluntly triangular, with 2 hairs, 0·05 mm. long. Subanal plate rectangular and (in mounted specimens) sometimes pointed posteriorly ; pale brown to brown, with 6–10 long hairs, 0·09–0·17 mm. long. Anus discernible in some specimens as a transverse slit, 0·04 mm. wide. Subgenital plate divided into 2 lobes,[1] pale to pale brown, with 11–17 (usually 14–15) hairs on each lobe, 0·06–0·11 mm. long.

[1] Dr. D. Hille Ris Lambers (*personal communication*) considers that these lobes represent very enlarged rudimentary gonapophyses fused with the subgenital plate.

Colour of living specimens: specimens from Australia are recorded as being flesh-coloured; those from India were light orange-yellow, with purplish-brown head and antennae. Light waxy dust on the body was noted in each case.

Holotype and *paratypes:* on roots of *Imperata arundinacea* Cyrilli. INDIA: Kalimpong, West Bengal, 7.iii.1958, at nearly 3500 feet (*A. N. Basu*).

Paratypes: on roots of *Pennisetum clandestinum* Hochst. AUSTRALIA: Moree, N.S.W., 1.x.1951 (*A. L. Dyce*).

Other records: *Imperata arundinacea*, *Paspalum dilatatum* Poir. AUSTRALIA: Sarina, Queensland, 27.vii.1927 (*G. H. Hardy*).

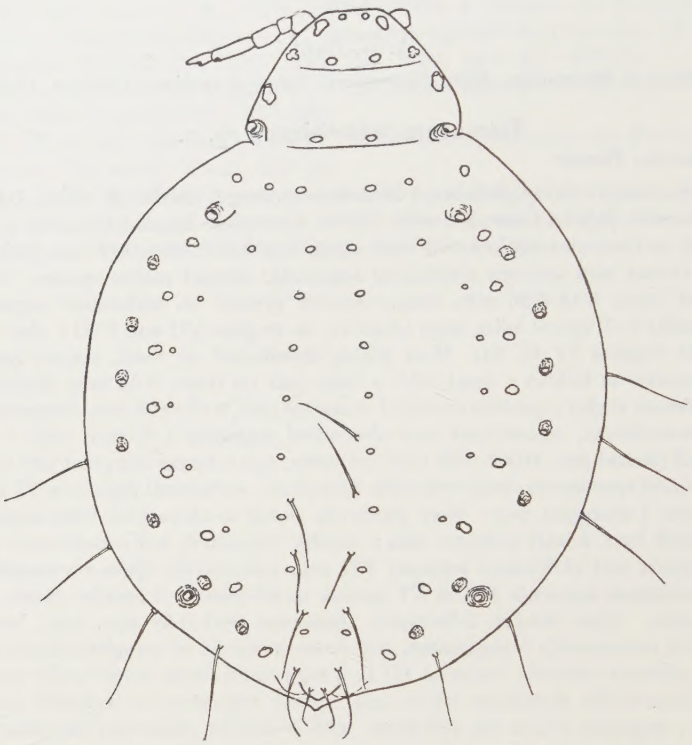

FIG. 1.—*Tetraneura heterohirsuta* sp. n., apterous viviparous female: diagram to show distribution of wax plates and spinal and marginal hairs. Marginal wax plates are ventral.

Holotype and paratypes in the collection of the Section of Entomology, State Agricultural Research Institute, Calcutta, India; paratypes in the collections of the Division of Entomology Museum, Commonwealth Scientific and Industrial Research Organisation, Canberra, Australia; the British Museum (Natural History), London; and of Dr. D. Hille Ris Lambers, Bennekom, Netherlands.

The Indian specimens have proportionately longer antennae and legs than the Australian ones, and usually possess only one pair of marginal hairs (on abdominal segment VII). No alatae of this species have yet been collected.

Tetraneura heterohirsuta sp. n. stands quite apart from other known members of the genus by its distinct dorsal body chaetotaxy.

The aphid infests the roots without any apparent injury to the host. At Kalimpong, a species of ant was noted to attend the aphid.

ACKNOWLEDGMENTS

The authors are greatly indebted to Dr. D. Hille Ris Lambers, Bennekom, Netherlands, for his valuable advice.

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—— 1936, New species of Coccidae. *Trans. R. ent. Soc. Lond.* **84** : 901–36.

Titles of periodicals cited are to be abbreviated in the manner indicated in the *World List of Scientific Periodicals, 3rd edition*, 1952.

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TO BE HELD IN THE SOCIETY'S ROOMS
41, Queen's Gate, S.W.7

1961

Wednesday, July 5
Thursday–Friday (Symposium) September 21–22
Wednesday, October 4

THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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